List of Contents

NUMBER 1–3

COMPUTATION AND CONTROL VI

H. T. Banks, K. Bowers and **J. Lund**	xiii	Preface
J. A. Atwell and **B. B. King**	1	Proper Orthogonal Decomposition for Reduced Basis Feedback Controllers for Parabolic Equations
A. Balogh, D. S. Gilliam and **V. I. Shubov**	21	Stationary Solutions for a Boundary Controlled Burgers' Equation
H. T. Banks	39	Remarks on Uncertainty Assessment and Management in Modeling and Computation
H. T. Banks, C. J. Musante and **J. K. Raye**	49	Predictions for a Distributed Parameter Model Describing the Hepatic Processing of 2,3,7,8-TCDD
H. T. Banks and **R. C. H. del Rosario**	65	Convergence of Approximations in Feedback Control of Structures
R. Barnard, W. P. Dayawansa and **C. F. Martin**	79	Polynomial Controllers for Linear Systems
J. A. Burns and **K. P. Hulsing**	89	Numerical Methods for Approximating Functional Gains in LQR Boundary Control Problems
J. A. Burns and **L. G. Stanley**	101	A Note on the Use of Transformations in Sensitivity Computations for Elliptic Systems
A. DeStefano	115	Connections between Universal Observability and Topological Dynamics
Y. DeWoody, C. F. Martin and **L. Schovanec**	121	A Forward Dynamic Model of Gait with Application to Stress Analysis of Bone
B. L. Ellerbroek and **T. A. Rhoadarmer**	145	Adaptive Wavefront Control Algorithms for Closed Loop Adaptive Optics
R. H. Fabiano	159	Renorming for Stability and Approximation of Linear Systems: Examples
K. Ito and **J. D. Schroeter**	173	Reduced Order Feedback Synthesis for Viscous Imcompressible Flows
N. Kirupaharan and **W. P. Dayawansa**	193	Theory of Reference Frames and Biological Control

M. Kong and **B. K. Ghosh**	199	Velocity Tuned Filters for Motion Estimation and Segmentation in Digital Image Sequences
H. V. Ly and **H. T. Tran**	223	Modeling and Control of Physical Processes Using Proper Orthogonal Decomposition
C. F. Martin, S. Sun and **M. Egerstedt**	237	Optimal Control, Statistics and Path Planning
L. A. Pritchett and **J. D. Dockery**	255	Steady State Solutions of a One-Dimensional Biofilm Model
K. Shuman and **E. Cornell**	265	Tests of a New Basis for Signal Processing
T. M. Simon, F. Reitich, M. R. Jolly, K. Ito and **H. T. Banks**	273	The Effective Magnetic Properties of Magnetorheological Fluids
R. C. Smith	285	Inverse Compensation for Hysteresis in Magnetostrictive Transducers
S. K. Tiwari and **K. L. Bowers**	299	Modeling Biofilm Growth for Porous Media Applications

NUMBER 4/5

M. Garbayo, E. Roanes-Lozano and **E. Roanes-Macías**	321	Tort-Decó: A "Turtle Geometry"-Based Package for Drawing Periodic Designs
S. Staněk	341	Positive Solutions of Singular Positone Dirichlet Boundary Value Problems
S. Staněk	353	Positive Solutions for a Class of Singular Semipositone Boundary Value Problems
J. Bank and **F. Werner**	363	Heuristic Algorithms for Unrelated Parallel Machine Scheduling with a Common Due Date, Release Dates, and Linear Earliness and Tardiness Penalties
A. Woods, F. Bloom and **D. Orloff**	385	Modelling of Flash Evaporation II: Numerical Solutions of the Model Equations
X. Cai, D. Sha and **C. K. Wong**	407	Time-Varying Universal Maximum Flow Problems
M. M. Chawla and **M. A. Al-Zanaidi**	431	A Class of One-Step Time Integration Schemes for Second-Order Hyperbolic Differential Equations
A. Speranza	445	Suspension Flows in a Pipeline with Partial Phase Separation
H. Dumitrescu and **V. Cardoş**	469	Predictions of Unsteady Hawt Aerodynamics by Lifting Line Theory
M. Xu, G. Chen and **Y.-T. Tian**	483	Identifying Chaotic Systems Using Wiener and Hammerstein Cascade Models

M. Solomonovich, L. P. Apedaile and **H. I. Freedman** — 495 Predictability and Trapping under Conditions of Globalization of Agricultural Trade: An Application of the CDS Approach

L. Caccetta and **S. P. Hill** — 517 Branch and Cut Methods for Network Optimization

A. Muhammad, A. Bargiela and **G. King** — 533 Fuzzy and Evolutionary Modelling of Nonlinear Control Systems

NUMBER 6/7

INTEGRATED MODELLING AND ESTIMATION

A. D. McDonald and **T. Beer** — xiii Preface

C.-H. Li — 553 Modelling Extrusion Cooking

N. Lawrence and **H. Y. P. Kortekaas** — 565 DECSIM—A PC-Based Diesel Engine Cycle and Cooling System Simulation Program

K. Kim and **S.-W. Moon** — 577 Foreign Reserve Crisis and the Korean Industrial Structure— A CGE Approach

B. Tenhumberg, M. A. Keller and **H. P. Possingham** — 597 Using Cox's Proportional Hazard Models to Implement Optimal Strategies: An Example from Behavioural Ecology

J. A. T. Bye and **J.-O. Wolff** — 609 Quasi-Geostrophic Modelling of the Coupled Ocean Atmosphere

P. I. Brooker — 619 Irrigation Equipment Selection to Match Spatial Variability of Soils

W. R. Dawes, G. R. Walker and **M. Stauffacher** — 625 Practical Modelling for Management in Data-Limited Catchments

P. A. Whigham and **W. J. Young** — 635 Modelling River and Floodplain Interactions for Ecological Response

R.-S. Wu, W.-R. Sue, C.-B. Chien, C.-H. Chen, J.-S. Chang and **K.-M. Lin** — 649 A Simulation Model for Investigating the Effects of Rice Paddy Fields on the Runoff System

S. Yu. Schreider and **A. J. Jakeman** — 659 Streamflow Modelling on a Subdaily Time Step in the Upper Murray Basin

H. R. Maier and **G. C. Dandy** — 669 Neural Network Based Modelling of Environmental Variables: A Systematic Approach

K. C. Luk, J. E. Ball and **A. Sharma** — 683 An Application of Artificial Neural Networks for Rainfall Forecasting

J. G. Ndiritu and **T. M. Daniell** — 695 An Improved Genetic Algorithm for Rainfall-Runoff Model Calibration and Function Optimization

P. A. Whigham and **P. F. Crapper**	707	Modelling Rainfall-Runoff using Genetic Programming
M. Grübsch and **O. David**	723	How to Divide a Catchment to Conquer Its Parallel Processing. An Efficient Algorithm for the Partitioning of Water Catchments
S. Yu. Schreider, P. C. Young and **A. J. Jakeman**	733	An Application of the Kalman Filtering Technique for Streamflow Forecasting in the Upper Murray Basin
C.-T. Su, G.-R. Lii and **C.-C. Tsai**	745	Optimal Capacitor Allocation Using Fuzzy Reasoning and Genetic Algorithms for Distribution Systems
F. Mei, Z. Man and **T. Nguyen**	758	Fuzzy Modelling and Tracking Control of Nonlinear Systems
N. Itakura, A. Fukeda, N. Honda and **K. Yikai**	771	Evaluation Method Using Chaotic Analysis for the Model of Vehicles' Behavior in Road Traffic System
Y. Xiao	783	Formulae for Calculating the Instantaneous Rate of Natural Mortality of Animals from Its Surrogates
K. P. Singh, Warsono, A. A. Bartolucci and **S. Bae**	793	Mathematical Modeling of Environmental Data

NUMBER 8/9

A. A. Chentsov and **A. G. Chentsov**	801	Dynamic Programming Method in the Generalized Traveling Salesman Problem: The Influence of Inexact Calculations
Th. Clopeau, J. L. Ferrín, R. P. Gilbert and **A. Mikelić**	821	Homogenizing the Acoustic Properties of the Seabed, Part II
A. Thavaneswaran and **S. Peiris**	843	Inference for Some Time Series Models with Random Coefficients and Infinite Variance Innovations
E. G. de Pillis and **L. G. de Pillis**	851	The Long-Term Impact of University Budget Cuts: A Mathematical Model
R. P. Gilbert and **G. N. Makrakis**	877	Low Shear Asymptotics For Elastic Seabeds
A. D. Drozdov	883	Modelling Nonlinear Viscoelasticity and Damage in Amorphous Glassy Polymers
S. Tang and **Y. Xiao**	895	Extinction and Persistence in Discrete Noncooperative Systems and Age-Structure and Diffusion
S. Rjasanow and **W. Wagner**	907	Simulation of Rare Events by the Stochastic Weighted Particle Method for the Boltzmann Equation
A. Gałka, J. J. Telega and **S. Tokarzewski**	927	Heat Equation with Temperature-Dependent Conductivity Coefficients and Macroscopic Properties of Microheterogeneous Media

L. Egghe and **R. Rousseau** 943 The Detection of Double Errors in ISBN- and ISSN-Like Codes

S. Das and **L. Debnath** 957 Stress Intensity Factor around a Griffith Crack in an Orthotropic Punched Layer

M. Á. Abrahantes Vázquez and **O. E. Agamennoni** 965 Approximate Models for Nonlinear Dynamical Systems and Their Generalization Properties

R. T. Yanushevsky 987 Two Steps Optimal Prediction of Positional Parameters for Moving Objects

J. C. Misra and **S. K. Pandey** 997 A Mathematical Model for Oesophageal Swallowing of a Food-Bolus

B. Tan 1011 A Three-Station Merge System with Unreliable Stations and a Shared Buffer

Y. Cherruault and **V. B. Sarin** 1027 Two Optimization Techniques as Used in a General Four Compartment First-Order System

NUMBER 10/11

MATHEMATICAL MODELLING AND ANALYSIS OF ROTORCRAFT SYSTEMS

D. A. Peters xiii Preface

H. Yeo and **I. Chopra** 1035 Coupled Rotor/Fuselage Vibration Analysis Using Detailed 3-D Airframe Models

P. P. Friedmann, M. de Terlizzi and **T. F. Myrtle** 1055 New Developments in Vibration Reduction with Actively Controlled Trailing Edge Flaps

E. Pesheck, C. Pierre and **S. W. Shaw** 1085 Accurate Reduced-Order Models for a Simple Rotor Blade Model Using Nonlinear Normal Modes

V. V. Volovoi, D. H. Hodges, C. E. S. Cesnik and **B. Popescu** 1099 Assessment of Beam Modeling Methods for Rotor Blade Applications

O. A. Bauchau, C. L. Bottasso and **Y. G. Nikishkov** 1113 Modeling Rotorcraft Dynamics with Finite Element Multibody Procedures

L. Tauszig and **F. Gandhi** 1139 Influence of Blade-To-Blade Dissimilarity on Alleviation of Helicopter Blade-Vortex Interactions

S. Subramanian, S. Venkataratnam and **G. H. Gaonkar** 1155 Parallel Fast-Floquet Analysis of Trim and Stabiliy for Large Helicopter Models

G. C. Ruzicka and D. H. Hodges 1177 Application of the Mixed Finite-Element Method to Rotor Blade Modal Reduction

P. P. Friedmann, G. P. Carman and **T. A. Millott** 1203 Magnetostrictively Actuated Control Flaps for Vibration Reduction in Helicopter Rotors—Design Considerations for Implementation

NUMBER 12/13

MODELING AND DATA ANALYSIS IN CANCER STUDIES

A. Yakovlev and **S. Moolgavkar**	xiii	Preface
T. Santner and **D. Pearl**	xv	Dedication
T. Radivoyevitch	1219	The Death-Mutation Model of Carcinogenesis
A. Tsodikov	1227	Estimation of Survival Based on Proportional Hazards When Cure is a Possibility
J. P. Sy and **J. M. G. Taylor**	1237	Standard Errors for the Cox Proportional Hazards Cure Model
Y. Gusev, V. Kagansky and **W. C. Dooley**	1253	Long-Term Dynamics of Chromosomal Instability in Cancer: A Transition Probability Model
V. A. Kuznetsov and **G. D. Knott**	1275	Modeling Tumor Regrowth and Immunotherapy
A. Kopp-Schneider	1289	Using a Stochastic Model to Analyze the Sequence of Phenotypic Changes in Rat Liver Focal Lesions
R. K. Sachs, L. R. Hlatky and **P. Hahnfeldt**	1297	Simple ODE Models of Tumor Growth and Anti-Angiogenic or Radiation Treatment
M. Zaider	1307	The Risk of Leukemia from Low Doses of Low-LET Radiation
E. Polig, F. W. Bruenger, R. D. Lloyd and **S. C. Miller**	1315	Model for the Occurrence of Bone Tumors in Beagles
W.-Y. Tan, C. W. Chen and **W. Wang**	1323	Stochastic Modeling of Carcinogenesis by State Space Models: A New Approach
G. Parmigiani and **S. Skates**	1347	Estimating Distribution of the Age of Onset of Detectable Asymptomatic Cancer
K. M. Boucher and **R. A. Kerber**	1361	The Shape of the Hazard Function for Cancer Incidence
A. D. Tsodikov, F. Bruenger, R. D. Lloyd, S. Miller, E. Polig and **A. Yu. Yakovlev**	1377	Modeling and Analysis of the Latent Period of Osteosarcomas Induced by Incorporated ^{239}Pu: The Role of Immune Responses
E. G. Luebeck and **M. C. M. de Gunst**	1387	A Stereological Method for the Analysis of Cellular Lesions in Tissue Sections Using Three-Dimensional Cellular Automata
L. Edler, J. Grassmann and **S. Suhai**	1401	Role and Results of Statistical Methods in Protein Fold Class Prediction

L. G. Hanin,
A. D. Tsodikov and
A. Yu. Yakovlev

1419 Optimal Schedules of Cancer Surveillance and Tumor Size at Detection

W. F. Heidenreich
and **H. G. Paretzke**

1431 City-Effects in the Atomic Bomb Survivors Data

J. D. Trelford,
A. D. Tsodikov
and **A. Y. Yakovlev**

1439 Modeling Post-Treatment Development of Cervical Carcinoma: Exophytic or Endophytic—Does It Matter?